

# SV-CFP-100G-ER4F

100GBase aggregating 4 x duplex LWDM (1295.6 nm, 1300.1 nm, 1304.6 nm, and 1309.1nm) SM (LC) with DDM, distance up to 40km, supporting 100GE and OTU-4



## Features

- Angled LC receptacle optical interface
- Single +3.3V power supply
- Hot-pluggable
- Operating optical data rate up to 112Gbps
- Operating electrical serial data rate up to 10.3125Gbps
- 10 parallel electrical serial interface
- Transmission distance up to 40km
- AC coupling of CML signals
- 1310 nm window cooled EA-DFB LD
- PIN ROSA
- Built in SOA
- Low power dissipation(Max:24W)
- Built in digital diagnostic function
- Operating case temperature range:0°C to 70°C
- Compliant with RoHs
- MDIO Communication Interface

## Applications

- OTN-OTU4
- Switch to switch interface
- Switch to rounter interface
- P to P Acess Network
- Compliant with IEEE 802.3ba
- Compliant with CFP MSA hardware specification
- Compliant with CFP MSA management specification
- Compliant with ITU-T G.709/Y.1331
- Compliant with RoHS&WEEE

## Ordering Information

Part number	Description
SV-CFP-100G-ER4F	Starview CFP 100Gbps module 100GBase aggregating 4 x duplex LWDM (1295.6 nm, 1300.1 nm, 1304.6 nm, and 1309.1nm) wavelenghts SM (LC) with Digital Diagnostic Monitoring (DDM), distance up to 40km,with Forward Error Correction (FEC) supporting 100GE and OTU-4

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Storage Temperature Range	Tst	-40		85	°C
Relative Humidity	RH	5		95	%
Power Supply Voltage	Vcc	-0.5		3.6	V

## Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Operating Case Temperature Range	Tc	0		70	°C	
Power Supply Voltage	Vcc	3.2	3.3	3.4	V	
Data rate	Vcc		103.125	112	Gb/s	

## Specifications

Parameter	Symbol	Unit	Min.	Typ.	Max.	Note
Supply Current	$I_{cc}$	A			7.5	1
Power Supply Noise	$V_{rip}$				2%	DC-1 MHz
					3%	1-10 MHz
Dissipation	$P_w$	W			24	
Low Power Dissipation	$P_{low}$	W			2	
Inrush Current	$I_{inrush}$	mA/usec			100	
Turn-off Current	$I_{inrush}$	mA/usec	-100			

### Different Signal Electrical Characteristics

Single Ended Data Input Swing		mV	20		525	
Single Ended Data Output Swing		mV	180		385	
Differential Signal Output Resistance		$\Omega$	80		120	
Differential Signal Input Resistance		$\Omega$	80		120	

### 3.3V LVCMOS Electrical Characteristics

Input High Voltage	3.3VIH	V	2.0		Vcc+0.3
Input Low Voltage	3.3VIL	V	-0.3		0.8
Input Leakage Current	3.3IIN	$\mu$ A	-10		+10
Output High Voltage ( $I_{OH}=100\mu$ A)	3.3VOH	V	Vcc-0.2		
Output Low Voltage ( $I_{OL}=100\mu$ A)	3.3VOL	V			0.2
Minimum Pulse Width of Control Pin Single	t_CNTL	us	100		

### 1.2V L VCMOS Electrical Characteristics

Input High Voltage	1.2VIH	V	0.84		1.5
Input Low Voltage	1.2VIL	V	-0.3		0.36
Input Leakage Current	1.2IIN	$\mu$ A	-100		+100
Output High Voltage	1.2VOH	V	1.0		1.5
Output Low Voltage	1.2VOL	V	-0.3		0.2
Output High Current	1.2IOH	mA			-4
Output Low Current	1.2IOL	mA	+4		
Input Capacitance	Ci	pF			10

Optical transmitter Characteristics					
Signaling Rate for Each Lane	Gbps		25.78125	28	
Four Lane Wavelength Range	$\lambda_1$	nm	1294.53	1295.56	1296.59
	$\lambda_2$		1299.02	1300.05	1301.09
	$\lambda_3$		1303.54	1304.58	1305.63
	$\lambda_4$		1308.09	1309.14	1310.19
Side Mode Suppression Ratio	SMSR	dB	30		
Total Average Launch Power	Pt	dBm	8.9		
Average Launch Power for Each Lane	Pa	dBm	-2.9	2.9	2
Optical Modulation Amplitude for Each Lane	OMA	dBm	0.1	4.5	3
Transmitter and Dispersion Penalty for Each Lanes			TDP	2.5	
Average Launch Power of Off Transmitter for Each Lanes	Poff	dBm	-30		
Extinction Ratio	EX	dB	8		
RIN <sub>20</sub> OMA			dB/Hz	-130	
Optical Return Loss Tolerance			dB	20	
Transmitter Reflectance			dB	-12	4
Eye Diagram	Compliant with IEEE 802.3ba-LR4				
Optical receiver Characteristics					
Receive Rate for Each Lane	Gbps		25.78125	28	
Four Lane Wavelength Range	$\lambda_1$	nm	1294.53	1295.56	1296.59
	$\lambda_2$		1299.02	1300.05	1301.09
	$\lambda_3$		1303.54	1304.58	1305.63
	$\lambda_4$		1308.09	1309.14	1310.19
Overload Input Optical Power	Pmax	dBm	5.5	5	
Average Receive Power for Each Lane	Pin	dBm	-20.9	4.5	6&7
Receive Power In OMA for Each Lane	PinOMA	dBm	4.5		
Difference in Receive Power between Any Two Lanes			dBm	4.5	
Receiver Sensitivity in OMA for for Each Lane	SOMA	dBm	-19.4		8
Stressed Receiver Sensitivity in OMA for Each Lane			dBm	-17.9	9&10

Note1. The supply current includes CFP module's supply current and test board working current.

Note2. Average launch power ,each lane(min) is informative and not the principal indicator of signal strength. A transmitter with launch power below this value cannot be compliant; however, a value above this does not ensure compliance

Note3. Even if the TDP<1dB, the OMA(min) must exceed this value

Note4. Transmitter reflectance is defined looking into the transmitter

Note5. The receiver shall be able to tolerate , without damage, continuous exposure to an optical input signal having this average power level

Note6. The average receive power , each lane (max) for 100GBASE-ER4 is larger than the 100BASE-ER4 transmitter

value to allow compatibility with 100BASE-LR4 units at short distances Note7. Average receive power, each lane (min) is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance

Note8. Receiver sensitivity (OMA), each lane (max) is informative

Note9. Measured with conformance test signal at TP3 for BER=10-12

Note10. conditions of stressed receiver sensitivity test: vertical eye closure penalty for each lane is 1.8dB;stressed eye J2 jitter for each lane is 0.3UI; stressed eye J9 jitter for each lane is 0.47UI.